

Two new species of *Neolepton* Monterosato, 1875 (Bivalvia: Neoleptonidae) from South Georgia Islands, South Atlantic Ocean

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ABSTRACT

Two new neoleptonid species from South Georgia Islands are described. *Neolepton georgianum* new species is characterized by a medium size shell, smooth shell surface, and ovate shell outline, slightly pointed at anterior end. *Neolepton holmbergi* new species is a small size species, sculptured with well-marked and regularly spaced commarginal ribs. Moreover, the record of *Neolepton powelli* from South Georgia Islands is brought into question.

Additional key words. Systematics, South Atlantic Ocean.

INTRODUCTION

Neolepton Monterosato, 1875, is a shallow-water worldwide genus of small Neoleptonidae bivalves. Recently, Salas and Gofas (1998) provided a comprehensive systematic revision of the genus, including a detailed anatomical description of the type species, *Neolepton sulcatulum* (Jeffreys, 1859).

Five *Neolepton* species are known from the Magellanic Region: *Neolepton cobbi* (Cooper and Preston, 1910), *Neolepton bennetti* (Preston, 1912), *Neolepton concentricum* (Preston, 1912), *Neolepton hupei* Soot-Ryen, 1957, and *Neolepton falklandicum* Dell, 1964. None of these species have been reported from South Georgia Islands (Bernard, 1983; Salas and Gofas, 1998; Valdovinos-Zargos, 1999).

Dell (1961) described *Neolepton powelli* from Macquarie Island and allocated specimens from South Georgia Islands to that species despite slight differences in shell outline and hinge details between the two localities. In the same paper, Dell (1961) misidentified neoleptonid specimens from Shag Rocks, near South Georgia Islands, as *Neolepton parasiticum* (Dall, 1876), a species belonging in the genus *Waldo* Nicol (1966) (Nicol, 1966) and excluded from the Neoleptonidae (Salas and Gofas, 1998; Zelaya and Ituarte, 2002).

In the present paper two new neoleptonid species from South Georgia Islands are described.

MATERIALS AND METHODS

The studied material was collected by the R/V EDUARDO L. HOLMBERG, from the Instituto Nacional de Investigación y Desarrollo Pesquero (INIDEP) during the April 1996 cruise to South Georgia Islands arranged by the Instituto Antártico Argentino (Figure 1). Samples were taken with a drag net, fixed in 10% buffered formalin and transported to the laboratory where bivalves were sorted from sediments using a stereoscopic microscope and preserved in ethanol.

The studied species were fully described and illustrated using scanning electron microscope (SEM) pho-

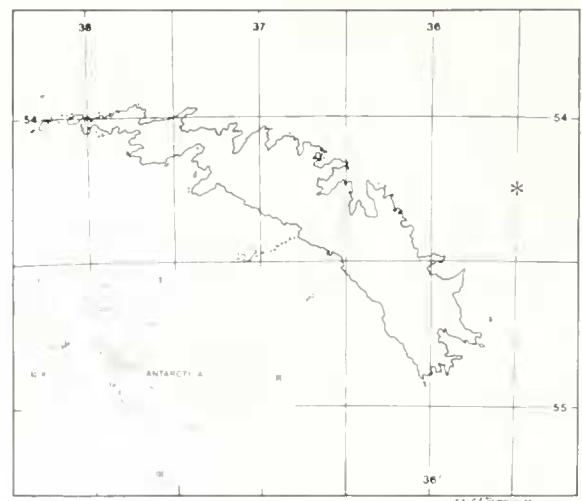
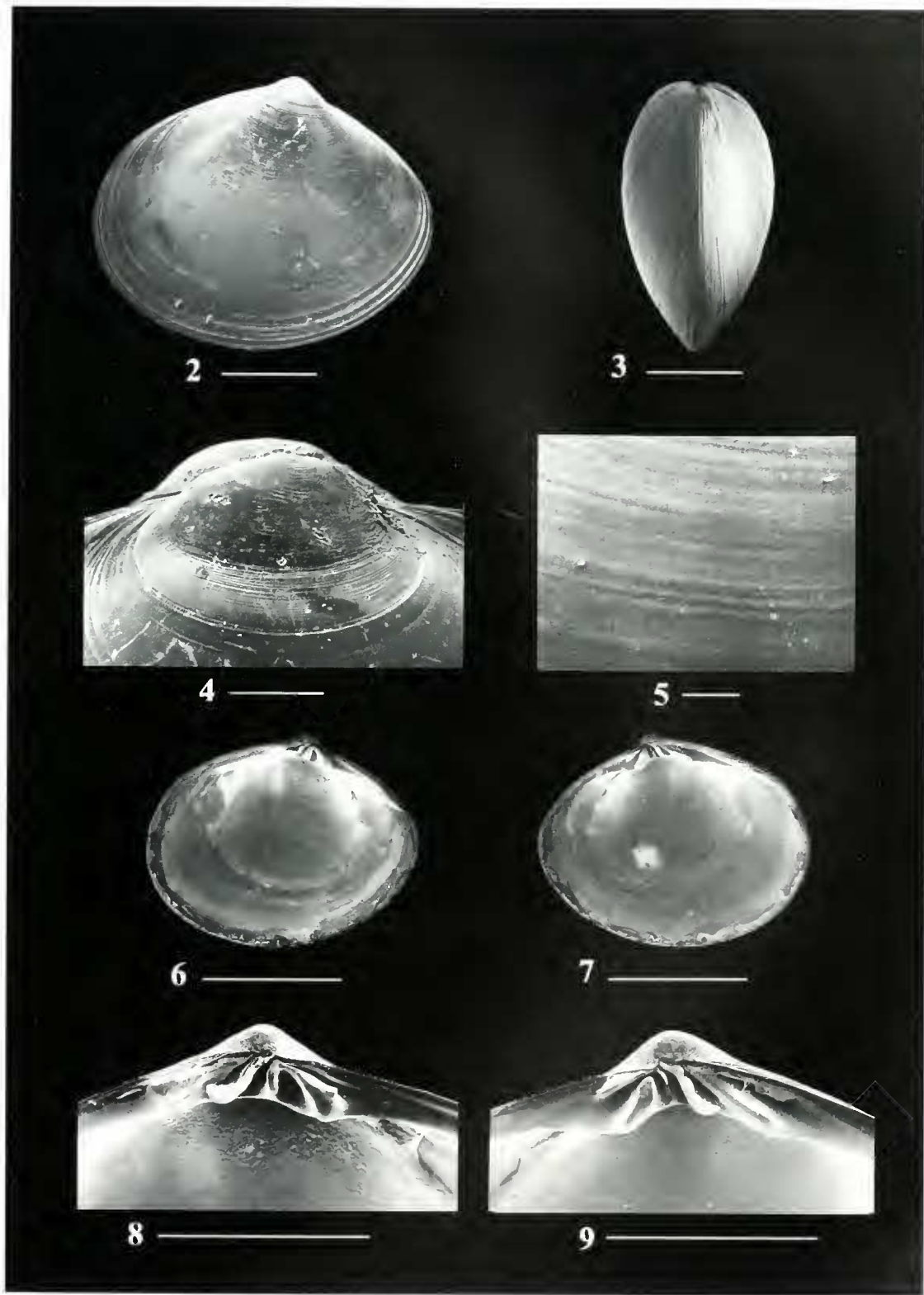


Figure 1. Location map showing the type locality (*) for *Neolepton georgianum* new species and X *holmbergi* new species.



Figures 2-9. *Neolepton georgianum* new species. **2.** Holotype, MLP 6733-1, lateral view of the right valve. **3-9.** Paratypes, MLP 6733-2. **3.** Posterior view. **4.** Detail of the protoconch. **5.** Shell surface sculpture. **6.** Inner view of a left valve. **7.** Inner view of a right valve. **8.** Left valve, detail of hinge. **9.** Right valve, detail of hinge. Scale bars: Figures 2, 3, 6-9 = 1 mm; Figures 4, 5 = 100 μ m.

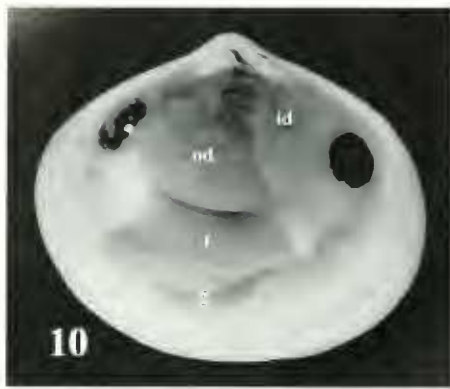


Figure 10. *Neolepton georgianum* new species. A partially dissected specimen (L = 3.3 mm) showing details of soft parts anatomy. **f**: foot; **g**: gland cells of the mantle edge; **id**: inner demibranch; **od**: outer demibranch.

tography. Hinge teeth terminology follows Bernard (1895, 1898) and Salas and Gofas (1998). Shell measurements were recorded according to the following criteria: shell length (L); maximum anteroposterior distance; shell height (H); maximum dorsoventral distance, perpendicular to length; shell width (W); maximum distance across valves. Morphometric ratios H/L and W/H were calculated. In the text, number of specimens measured (n), mean, and standard deviation are given. Voucher specimens were deposited in Museo de La Plata, La Plata (MLP), Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires (MACN) and Muséum National d'Histoire Naturelle, Paris (MNHN).

For comparative purposes, types of *Neolepton hupei* from the Swedish Museum of Natural History, Stockholm (SMNH), and photographs of the holotype of *N. powelli* from the Natural History Museum, London (NHM) were used.

SYSTEMATICS

Neolepton georgianum new species

Figures 2–10

Description: Shell delicate, medium sized (maximum L = 3.4 mm), not inflated (ratio W/H = 0.51 ± 0.03 , n = 12), shell outline ovate, somewhat elongate, high (ratio H/L = 0.53 ± 0.02 , n = 12), somewhat inequilateral, posterior end larger and wider than anterior one, which is slightly pointed; anterior and posterior half of dorsal margin only slightly curved, ventral margin evenly and widely arcuate; anterior margin short, acute, posterior margin widely and evenly curved. Beaks very small, sharply triangular, slightly displaced forward, clearly outstanding from shell surface and well visible above dorsal margin. Protoconch well-marked, smooth, not much inflated, about 300 μ m long. Shell surface brilliant, periostracum pinkish, faintly sculptured with very low, irregularly spaced, commarginal ribs.

Hinge plate strong, narrowing moderately below the beaks. Left valve: cardinal 2a relatively short, straight, greatly enlarged at posterior half, cardinal 2b relatively long, forming a hook with 2a, posterior lateral PH short, strong and well outstanding from dorsal margin. Right valve: cardinal 1 high, with distal cusp and short base nearly perpendicular to anteroposterior axis; 3a slender and low, 3b quite short and very thin. PI well developed, elongate, with distal cusp.

Inner and outer demibranchs present; the outer demibranch, shorter, represents approximately the half of the inner one. Branchial filaments of outer and inner demibranchs sloping toward the anterior end. Inhalant aperture and exhalant siphon bordered by a single row of short tentacles. Large glandular cells of the mantle edge at both sides of the pedal aperture were present and well visible by transparency.

Type Material: Holotype, MLP 6733-1; Paratypes: 20 MLP 6733-2, 10 MACN 35289; 10 MNHN unnumbered; all from the type locality, RV EDUARDO L. HOLMBERG, 8 April 1996.

Other Material Examined: >60 specimens from the type locality (MLP 6733-3, MACN 35290).

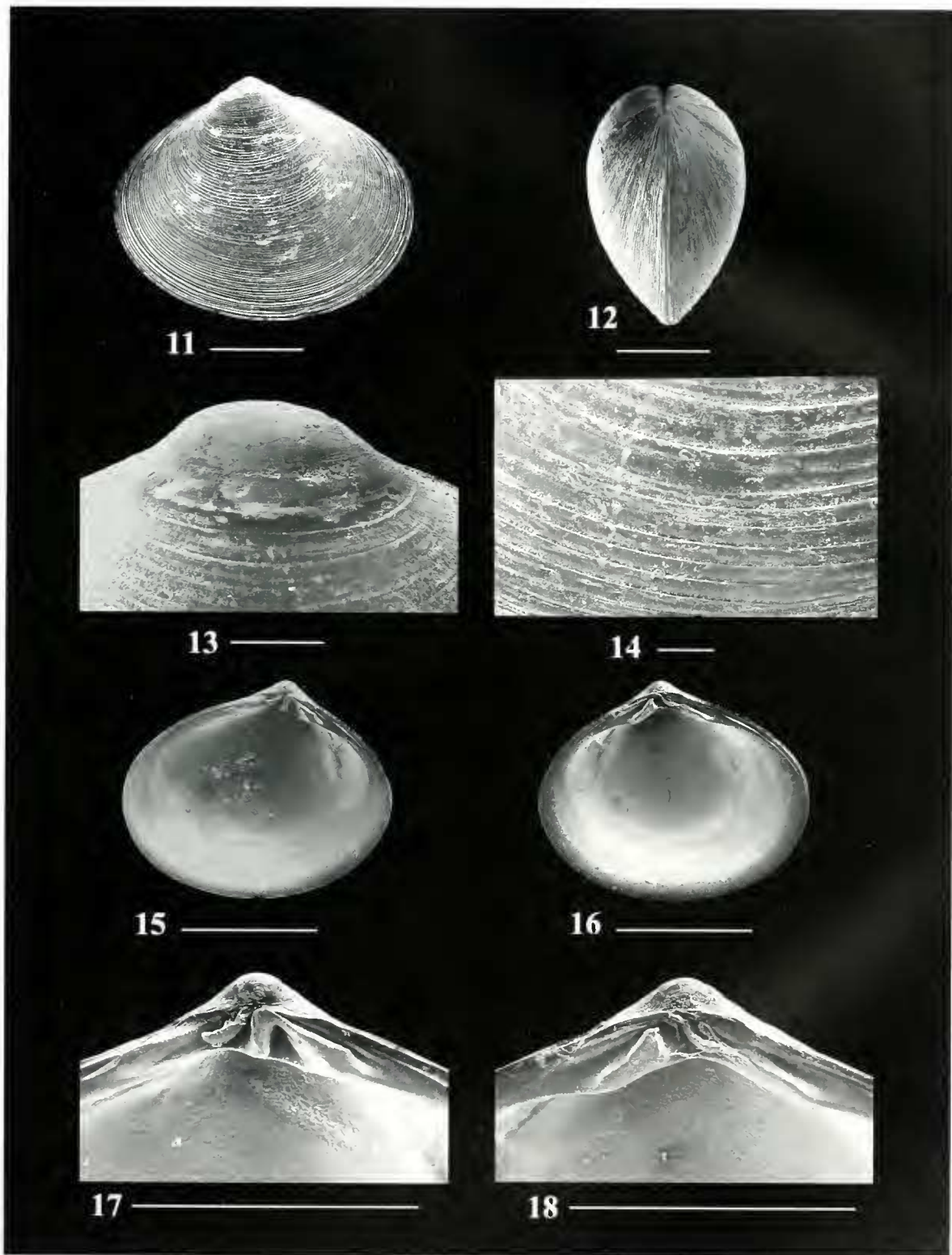
Type Locality: 54°18' S, 35° 30' W, South Georgia Islands, 94 m.

Distribution: The species is only known from the type locality.

Etymology: The species is named after the South Georgia Islands, the type locality.

Remarks: *Neolepton georgianum* new species resembles *Neolepton hupei* in shell outline, differing by its smaller, higher, and more inequilateral shell. Hinge teeth, particularly the cardinal 1, are more delicate in *N. georgianum* than in *N. hupei*. The color of periostracum, pinkish in *N. georgianum* and whitish in *N. hupei* is also a distinctive character. *Neolepton georgianum* is also similar to *Neolepton holmbergi* new species, from which it differs in having a less inflated shell, shell outline with a pointed anterior end, and smooth shell surface. Both species are characterized by their pinkish periostracum.

Neolepton georgianum differs from *N. cobbi*, *N. Bennetti*, and *N. concentricum* by its quite ovate shell outline and smooth shell surface; the more inequilateral shell and the lower and not prominent beaks clearly separate *N. georgianum* from *N. falklandicum*. *Neolepton georgianum* also differs from *N. powelli* in having a more ovate shell outline, a consistently more acute anterior end and more curved dorsal and ventral margins. *Neolepton powelli* was described from Macquarie Island; in the same paper Dell (1961) also referred several specimens from South Georgia Islands to this species. Taking into account the narrow distribution ranges that characterize many *Neolepton* species, as inferred from the generic revision by Salas and Gofas (1998), it is not unlikely that the specimens from South Georgia Islands



Figures 11–18. *Nuclepton holmbergi* new species. **11.** Holotype (MLP 6734-1) lateral view of the left valve. **12–15.** Paratypes (MLP 6734-2). **12.** Posterior view. **13.** Detail of the protoconch. **14.** Shell surface sculpture. **15.** Inner view of a left valve. **16.** Inner view of a right valve. **17.** Left valve, detail of hinge. **18.** Right valve, detail of hinge. Scale bars: Figures 11, 12, 15–18 = 1 mm; Figures 13, 14 = 100 μ m.

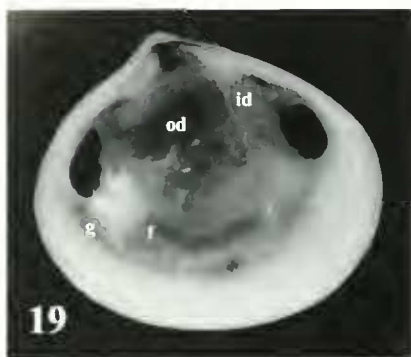


Figure 19. *Neolepton holmbergi* new species. A partially dissected specimen (L = 2.7 mm) showing details of soft parts anatomy. **f:** foot; **g:** gland cells of the mantle edge; **id:** inner demibranch; **od:** outer demibranch.

reported by Dell (1964) as *N. powelli*, would represent a different *Neolepton* species, possibly *N. georgianum*.

Neolepton holmbergi new species
(Figures 11–15)

Description: Shell delicate, small sized (maximum L = 2.5 mm), somewhat inflated (ratio W/H = 0.66 ± 0.03 , n = 11), shell outline ovate, somewhat elongate, high (ratio H/L = 0.55 ± 0.02 , n = 14), somewhat inequilateral, posterior end expanded, larger than anterior one; dorsal margin extended in a wide curve, tending to be straight at posterior half; posterior margin curved, ventral margin evenly arcuate, anterior margin short and curve. Beaks subcentral, usually eroded. Protoconch well-marked, smooth, not inflated, about 300 μ m long. Shell surface dull shining or silky, sculptured with well-marked commarginal ribs, evenly spaced; periostracum pinkish.

Hinge plate solid, narrowing moderately below the beaks and at posterior half. Left valve: cardinal 2a relatively long, slender, enlarged at posterior end; cardinal 2b solid; posterior lateral P1 elongated, hardly discernible from dorsal margin. Right valve: cardinal 1 high, with sharply triangular distal cusp and large base; 3a slender, long and low, 3b quite short, weak, P1 well developed, elongate, with distal cusp.

Inner and outer demibranchs present: the outer much shorter, slightly overlapping the inner one and representing about the third of its length. Filaments of outer demibranch nearly horizontal. Inhalant aperture and exhalant siphon bordered by a single row of short tentacles. Glandular cells of the mantle edge present at both sides of the pedal aperture.

Type Material: Holotype, MLP 6734-1; paratypes: 20 MLP 6734-2, 10 MACN 35291, 10 MNHN unnumbered; all from the type locality, 5 April 1996, RV EDUARDO L. HOLMBERG.

Other Material Examined — 60 specimens from the type locality (MLP 6734-3, MACN 35292).

Type Locality: 54°18' S, 35°30' W, South Georgia Islands, 94 m.

Distribution: The species is only known from the type locality.

Etymology: The species is named after the RV EDUARDO L. HOLMBERG, aboard of which this species was collected.

Remarks: The general shell outline and the shell surface sculpture of well-marked commarginal regularly spaced ribs are diagnostic features of *Neolepton holmbergi* new species. *Neolepton holmbergi* is most similar to *Neolepton georgianum* new species, differing in having a more inflated shell, not much inflated protoconch and shell surface with stronger and regularly spaced commarginal ribs. The more triangular shell outline with nearly equally arcuate anterior and posterior ends is also distinctive for *N. holmbergi*. The hinge in *N. holmbergi* differs in having a high cardinal 1, with a wider base and triangular distal cusp.

Neolepton lupei, another similar species, clearly differs from *N. holmbergi* by its larger size, smooth shell surface, stronger hinge teeth and whitish periostracum.

Neolepton holmbergi differs from *Neolepton falklandicum* by its well-marked shell surface sculpture and not prominent beaks. *N. holmbergi* differs from the other Magellanic *Neolepton* species (*N. cobbi*, *N. concentricum* and *N. bennetti*) in being smaller, having a relatively lower and markedly ovate shell outline.

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